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**THE ART  
OF  
BLOCK  
BUILDING**

# THE COOPERATING SCHOOL PAMPHLETS



*Edited by*

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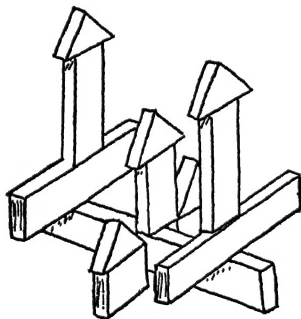
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HARRIET M. JOHNSON

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THE ART  
*OF*  
BLOCK BUILDING



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**I**N the school of which I am writing,<sup>1</sup> and in others with which I am familiar, block building is one of the major interests. A description of the activities of these schools or a discussion of their curricula would show constructive play with blocks as a central and coordinating feature of their programs.

As I have watched block building over a period of years, the method by which children develop techniques in construction and the versatility they show in their use of blocks has been of increasing interest to me. Still more absorbing has been the realization that almost inevitably, in the block building history of group after group, there appear art forms, comparable in spirit to those produced by older children with plastic materials, such as paints or clay.

I have tried to present in these pages the use of blocks as a medium of expression and to give a glimpse of the ideas and feelings expressed by children from two to six years of age.

The first use of blocks among small children is not properly building. Blocks are carried from place to place or they may be stacked or massed in irregular, conglomerate piles before the period of construction begins. During this time a child is probably getting an experience no less real than his later one when adults can recognize the result as illustrating actual problems in balance, construction, design or representation. The early experience holds value because of the chance to gain acquaintance with this particular building tool by manipulation and by using various forms and various spaces.

Between two and three years of age real construction begins, and has been found to follow broadly three or four

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<sup>1</sup>Nursery School of the Bureau of Educational Experiments.

lines of development, especially as regards the techniques. Blocks in these early years are comparable to such plastic materials as crayons, paint or clay, and their use is dependent upon the impulse which is influencing the young builder.

The blocks in use in the indoor playrooms are here shown.<sup>2</sup>

*Fig. 1*

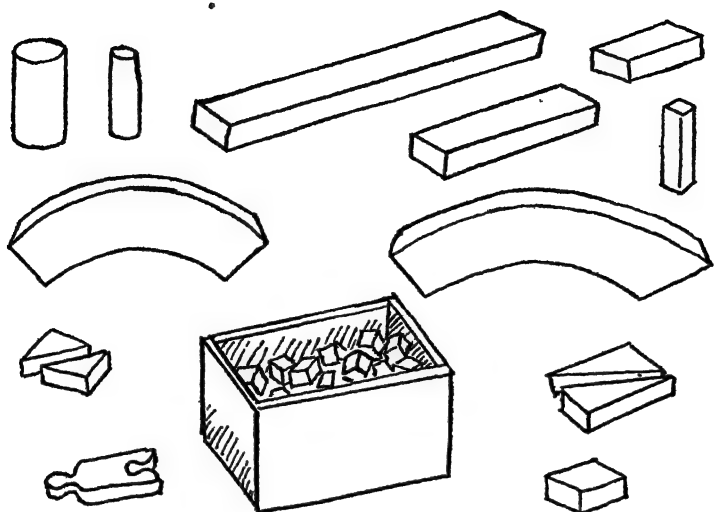
It will be seen that from the unit by multiplication or division all the other forms can be made, except the cylinders or curves. The cylinders conform in height to the unit and posts. The curves are of similar width and thickness. The box contains colored cubes one inch square.

It is essential that the blocks be cut very accurately so that all edges are even and that the multiples and divisions of the unit are exact, as they are tools for the children's use, and the most desirable building habits will be established only if the materials are stable and precise.

Occasionally the illustrations show other blocks than the set described above. This occurs only in the youngest groups where a wider variety of materials is provided.

The sketches of actual constructions made by the children are taken from the daily records of teachers and students. They are accurate as regards the kind and number of blocks used, but because they are made hastily and because few of us have a draftsman's ability, they are far from accurate in perspective and proportion. They are not drawn to the same scale because they were designed only as a graphic record of the day's building activity.

<sup>2</sup>These blocks were designed by Caroline Pratt and have always been used in the City and Country School. She has never given them her name and so they are found on the market under the name of the manufacturer and under various trade names.



### SET OF BLOCKS

Units	$1\frac{3}{8}" \times 2\frac{3}{4}" \times 5\frac{1}{2}"$
Half Units	$1\frac{3}{8}" \times 2\frac{3}{4}" \times 2\frac{3}{4}"$
Double Units	$1\frac{3}{8}" \times 2\frac{3}{4}" \times 11"$
Quadruple Units	$1\frac{3}{8}" \times 2\frac{3}{4}" \times 22"$
Pillars	$1\frac{3}{8}" \times 1\frac{3}{8}" \times 5\frac{1}{2}"$
Triangles	$1\frac{3}{8}" \times 2\frac{3}{4}" \times 2\frac{3}{4}"$
Triangles	$1\frac{3}{8}" \times 2\frac{3}{4}" \times 5\frac{1}{2}"$
Curves	$1\frac{3}{8}" \times 2\frac{3}{4}" \times \text{about } 10"$
Switches	$1\frac{3}{8}" \times 2\frac{3}{4}" \times \text{about } 13"$
Cylinders	$1\frac{3}{8}" \text{ diameter} \times 5\frac{1}{2}" \text{ long}$
Cylinders	$2\frac{3}{4}" \text{ diameter} \times 5\frac{1}{2}" \text{ long}$
Cubes in box	$1" \times 1" \times 1"$ (primary colors)

All parents and teachers will agree that repetition in one form or another is characteristic of the child who is just beginning to perfect his locomotion or his language. He climbs up steps only to descend and climb again. He throws a ball only to retrieve it and throw again, unless he can induce an adult to take one step in the repetitive process. After he learns to say, "I slide down" or "Want see," adults turn gray as the refrain beats on their tired ears.

It has been very interesting to us to find repetition in many forms appearing again and again as the first constructive use of blocks.

A child can repeat by piling blocks one on top of another. At first the resulting tower may be an irregular one, threatening to fall as each additional block is placed. At this stage lofty towers are not found in the records because they crash before a sketch of them can be made.

Early differences in personality traits are plainly shown here. There are children who, from the first, attempt to straighten their block edges and who do not try for perilous heights, seemingly able to judge when the last steady block is in place. There are others who fling their blocks together, not concerned with the perfection or the stability of the structure.

Whichever method individual children choose, the general tendency toward repetition is universal. Among the youngest children it almost seems as if their object was to clear all shelves, so persistently do they add another and another and another block to a tower or a row, or as will be seen, repeat a pattern over and over again.

At two years and three months Edith, who had discovered that blocks were not just luggage but building material, achieved this tower. First one block and then another, laid as nearly as possible in the same place.

*Fig. 2*

None of the methods in use among young builders is superseded entirely by new and elaborate building techniques. Rather each form evolves into more and more detailed constructions which are more and more difficult of execution, as skill of hand and an understanding of the possibilities within the material develop.

At first the evolution takes the form of experimenting within the chosen plan. Having made a pile of blocks, perhaps all of one kind, the two-to-three-year-old varies his kind, or combines his kinds, or he does stunt building, balancing large blocks on a smaller base or on a narrow support.

Edith, two years, four months, chose the corner of the "push box" on which to build her tower. Evening of the edges became an essential technique.

*Fig. 3*

Danny, two years, seven months, placed a tower of three cubes on each corner of his cube box. This was a task requiring care and delicacy of handling as he began on the nearer corners and reached across the first towers to place the farther ones.

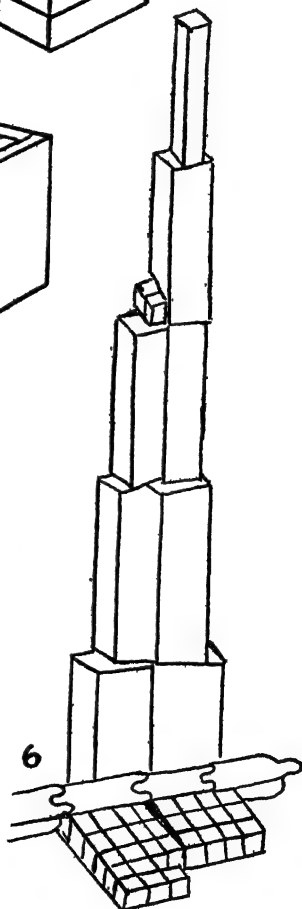
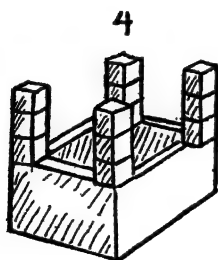
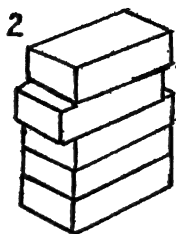
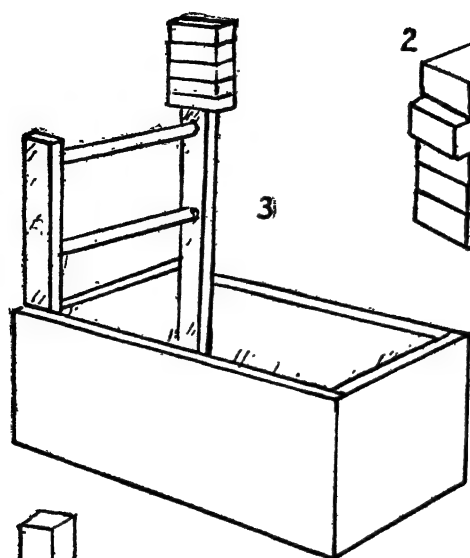
*Fig. 4*

Bobby, two years, ten months, tried repeated balancing stunts with units and half units. While placing the two top blocks he steadied those below with his left hand.

*Fig. 5*

Henry, two years, ten months, took blocks of various sizes to make his tower. The trains and the flooring of cubes seemed to be accessories.

*Fig. 6*



Whether or not the tower is an earlier pattern than the row it is impossible to tell with the data at hand. Traditional influences as well as modern tendencies are at work toward establishing an interest in height. Also to lay one block upon another may be a simpler process than to place one next to another in a line. The examples here given of the tower and the row were made within the same month. The recipe is similar: first one block and then another in serial order on the floor.

Later, when less hampered by the difficulties of mere manipulation of the material, children embroider the pattern in a variety of ways. Instead of laying the blocks closely side by side or edge to edge, they may space them, alternating the sizes as they place them or alternating single blocks with low tiers.

*Figs. 7-8-9*

At two years, six months, Henry used two sizes alternately.

*Fig. 10*

Repetition follows a syncopated rhythm in Danny's building at two years, six months.

*Fig. 11*

At two years, nine months, Carl made quite an elaborate arrangement of half units which began as two parallel rows evenly spaced about two inches apart. He placed thirteen in one row and ten in the other, as if he had missed his count.

These two patterns, the tower and the row, are preeminently characteristic of youthful building. Sometimes towers and rows are combined as in this two year, three month effort.

*Fig. 12*

When a child can make single towers with blocks on edge as well as flat on their faces, or with combinations of sizes or shapes, he finds that a series of towers makes a wall, just as a series of rows makes a floor.

### *Figs. 13-14*

At first, handling blocks, then arranging them in towers and rows, or walls and flooring, absorbs children. Interest in these types of construction in and of themselves is short-lived, because they are soon incorporated into more elaborate constructions. They are no longer valued as an end but only as a technique and a detail in larger architectural planning. It is almost as if the first year of building were a practice period which is to lay the foundations for the more technical work of the advanced student of four and five years!

Beneath all the examples given and illustrated runs the youthful pattern, put down one and then another and then another and then another.

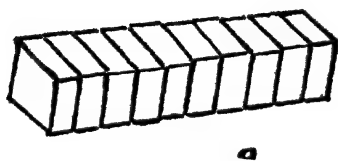
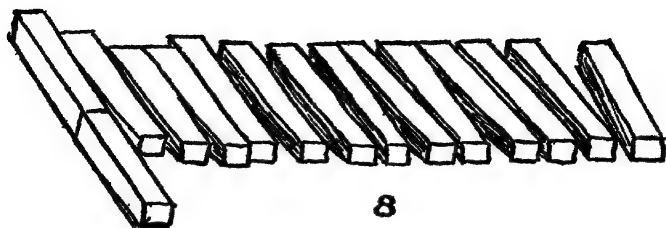
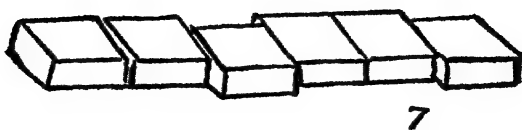
After a time, given these architecturally exact building materials, certain problems in construction seem invariably to arise. By this I mean that although no patterns are set and no suggestions are made by the teachers, the constructions made increase in elaboration and in difficulty, and fairly predictable stages in the building activities can be observed.

One of the early problems is that of bridging, of setting up two blocks, leaving a space between them and roofing that space with another block.

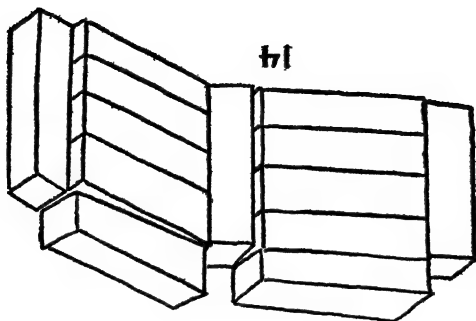
It is sometimes a difficult problem to place the uprights at an appropriate distance apart so that the third block will bridge the space. An acute dilemma occurs when one of the longest blocks on the shelves is laid flat and another is placed upright at either end of that one. Such a problem has been known completely to block a three-year-old and the younger child is usually defeated at the first failure.

Edith, two years, three months, twice set up the figure



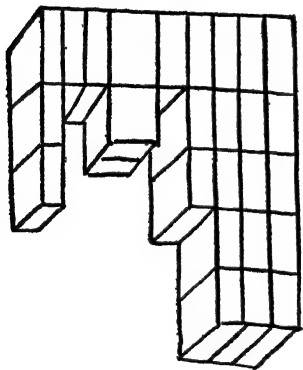


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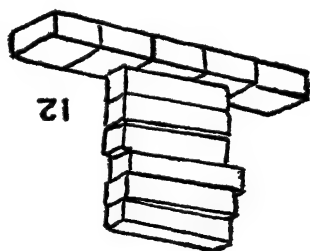


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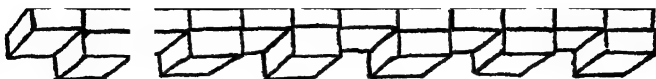
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sketched, all three blocks double units, and tried to bridge the space with a double.

*Fig. 15*

Edith, two years, four months, set up *a*, *b*, and *c* (doubles), and tried to bridge them as usual with another double. When she found that it would not fit, she tried it across *c* (dotted lines), then laid it in position *x*, and added *y*. Details of further additions unnoted.

*Fig. 16*

Danny, two years, five months, spaced four double units on end when Henry was making a bridge unit similarly, but did no more about it.

*Fig. 17*

Danny is here approaching success, though his bridge does not yet span a space between two uprights.

*Figs. 18-19*

At two years, six months, he had achieved the bridge technique.

*Fig. 20*

Elaboration of the bridge pattern when, at two years, seven months, he was past master in bridging. Double units *a* and *b*, and *c* and *d*, were bridged in pairs, each with a double unit on its face (*m* and *n*), which held the roofing.

*Fig. 21*

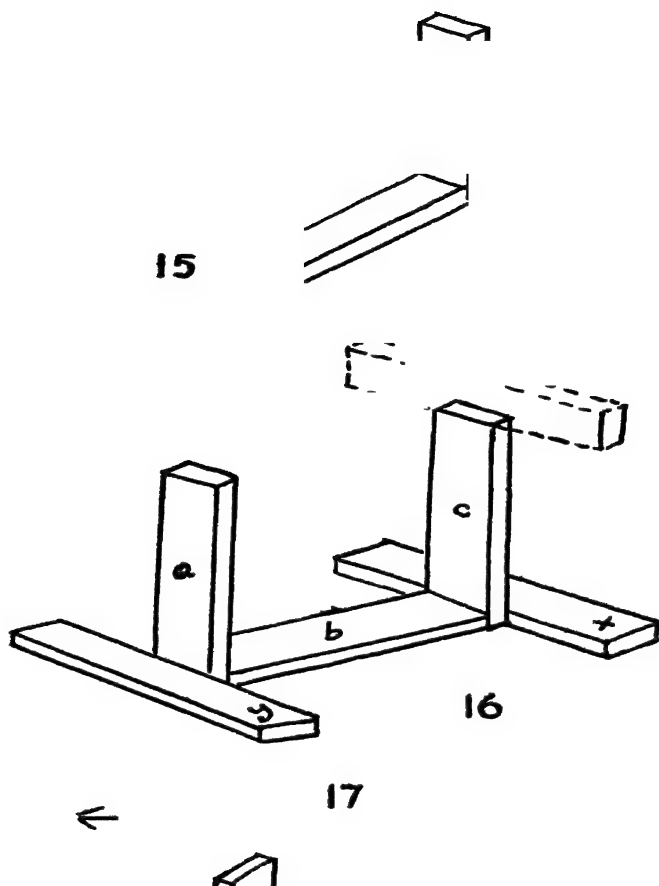
Repetition takes possession of the young builder as soon as the new technique is established.

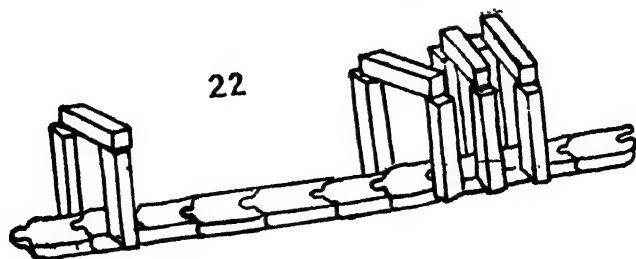
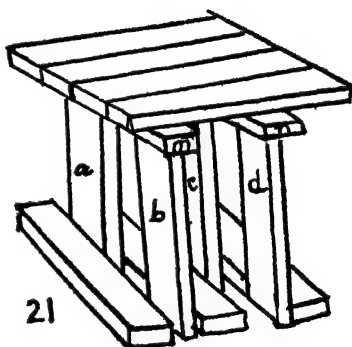
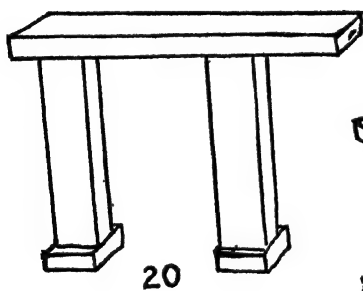
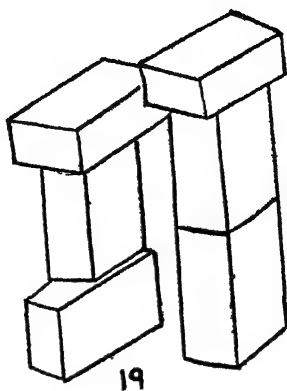
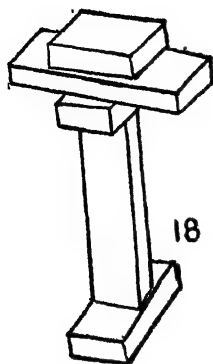
*Fig. 22*

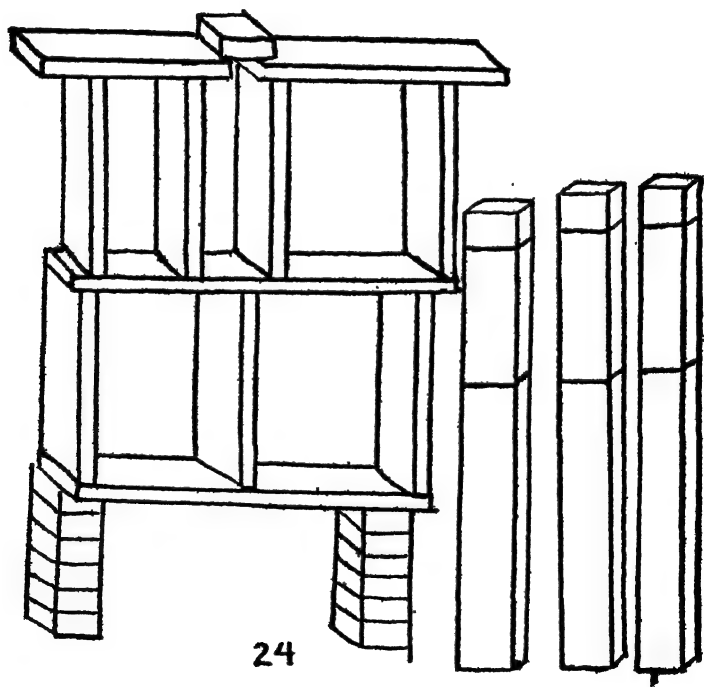
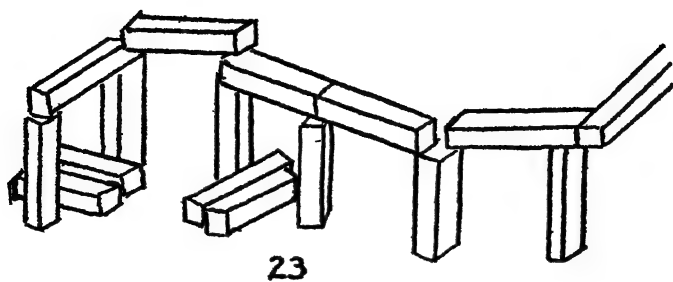
Michael, three years old, builds structures almost too complicated to sketch. There were sixteen of these arches made of posts and extending in an irregular line over a considerable surface of the floor. (Six only shown in cut).

*Fig. 23*

Facility leads to a combination of styles and methods. The tower and the bridge form "a high building," with "fire







ladders" at the side. Bobbie, two years, eleven months, built as shown then propped the three uprights against the "high building." Adults had to help him steady the building while he arranged the towers, but he managed to make the structure stand. Showed elation when the feat was accomplished, jumping and clapping his hands and smiling broadly.

*Fig. 24*

Enclosures appear early in the building activities. To put four blocks together so that a space is completely enclosed is not a simple task. It appears, however, and once learned, repetitive enclosures seem to be the next step. That is, every new device, idea, method or pattern lends itself to the repetitive formula.

Sarah Anne, two years, three months, worked for a full month before she succeeded in placing the last block which completely enclosed a space. The driving force was her own initiative.

*Figs. 25-26*

Sarah Anne, two years, five months, built double units and two half units as shown. A marked elaboration of her first attempt.

*Fig. 27*

Fancy free, now that skill of hand is acquired, Sarah Anne, two years, six months, has arranged her enclosures in patterned, repetitive form.

*Fig. 28*

Danny, two years, six months, arranged a row of four enclosures. Repetition takes the field.

*Fig. 29*

This time he set his enclosures on end—or are they a series of bridges? First one and then another and then another.

*Fig. 30*

Michael, three years, one month, varies the square design.

*Fig. 31*

Here are enclosures repeated and elaborated. Michael, three years, two months, set double units on edges, making a most pleasing pattern as shown. He began with the pentagon, then added the triangle. He did not achieve the square and triangle at the first placing of the blocks but pushed them about. Said, "Pushing them in" once as he worked. . . . Was not heard to name his building.

*Fig. 32*

Let no academic adult here raise the question: "Do you call the child's attention to the shapes he has made, the rectangle, the triangle, the pentagon, and give him their names?" The experience which building holds for the child is varied, to be sure, but it is useless unless it springs from some impulse within him. At this stage he is wrestling with the problem of making material, which to the uninformed adult may seem factual and unyielding, take on the quality of plasticity and almost of malleability. It will yield to the child's desire. Children are absorbed, intent and satisfied during this process, as anyone who has watched a block building period can testify. Information is completely irrelevant here. It would remain irrelevant even if we granted that the subject was one suited to the preschool ages.

Michael, three years, four months, still intent upon odd-shaped enclosures, builds what he calls "the wow wow circle."

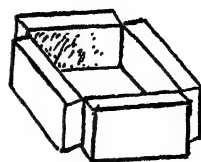
*Fig. 33*

Enclosures become elaborate at three years, ten months. This was called "a house," and dolls were placed in each section.

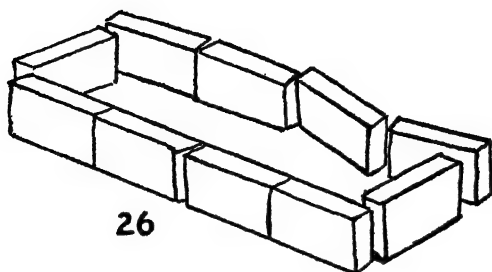
*Fig. 34*

When a child is once able to see blocks as building material which is capable of being put together in an ordered ar-

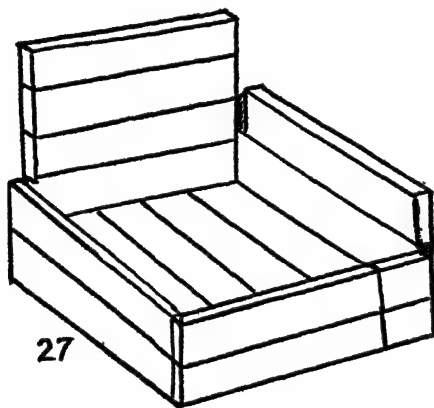




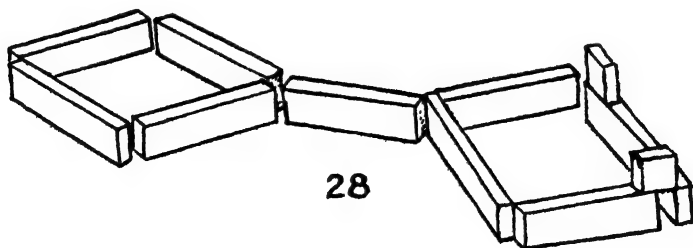
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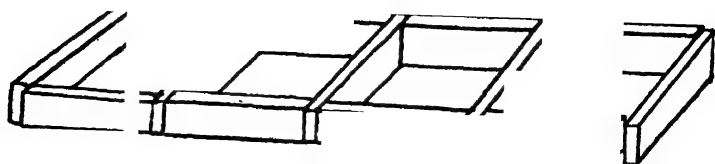
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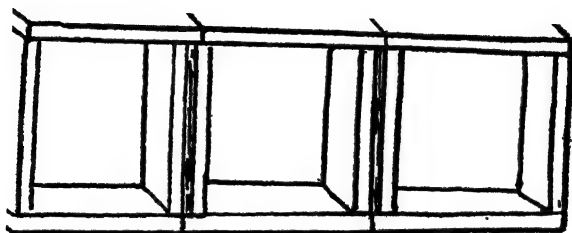
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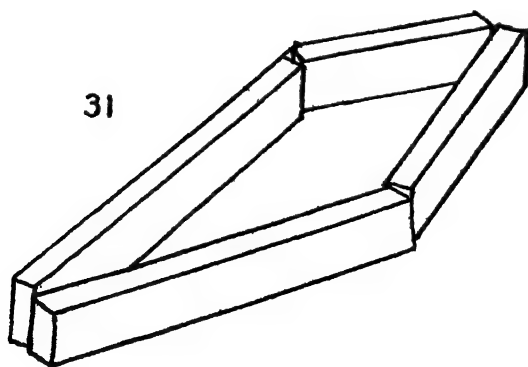
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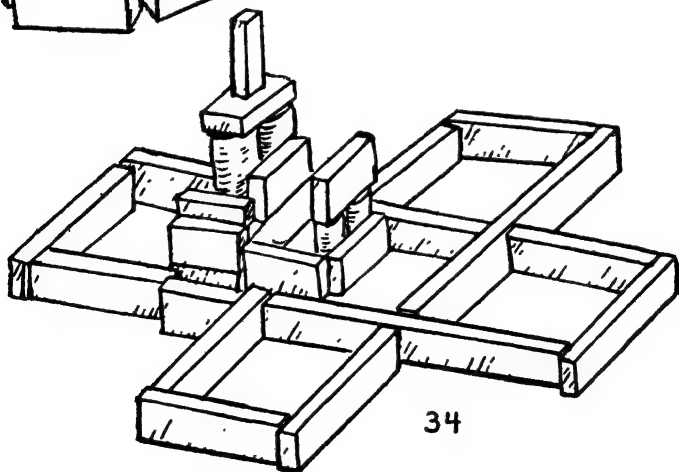
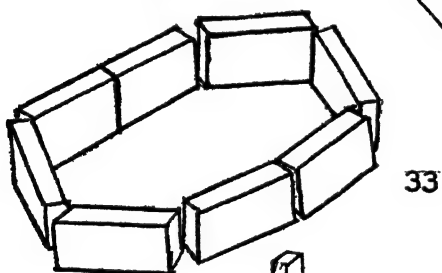
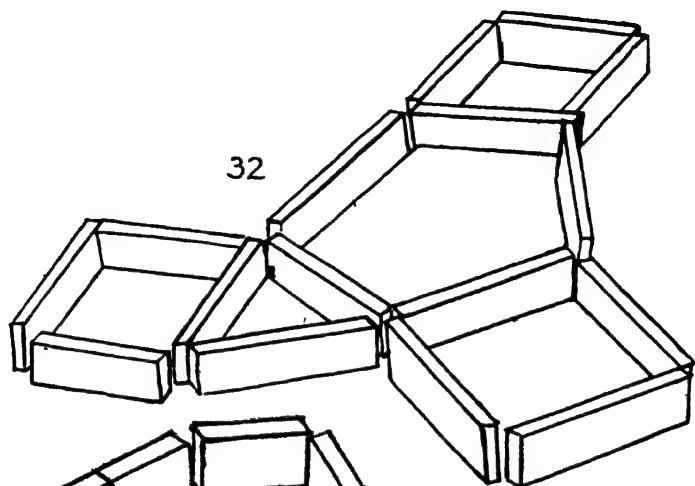
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rangement, a variety of methods, patterns and techniques seem to suggest themselves to him. Between twenty-seven and thirty-one months we find examples of all the kinds of building described here, though in forms that are extremely simple and crude in execution. With age there is a steady increase in facility, imagination, elaboration of design and actual number of blocks used. If we glance back at the early appearance of the different types of building illustrated in the foregoing pages, we find that from the first trial of one building technique to the accomplishment of several kinds—from the tower through to simple bridges and enclosures—there is a very short time span.

As soon as children begin to acquire facility in the use of blocks, so that they feel at home with the material, another tendency appears, namely that of building in balanced and decorative patterns. We have been led to the conclusion that blocks are essentially the most admirable plastic material for young children, because with blocks they seem able to arrange, to design, to compose.

I do not wish to imply that any child says, even to himself, "Now I will make a design," but that with child after child in a group, with child after child of age after age, unnamed and unused buildings appear, delightful to the adult eye in the rhythm of their balance and the originality of their design and decoration.

In such decorative buildings are incorporated any or all of the building principles described, and with them the repetitive impulse finds full scope; in fact, repetition is one of the features of design.

Again it must be said that no patterns are set the children, that no comments are made upon their buildings except in

the way of general response to a given child's explanation or remark. Occasionally a child is asked, "Would you like to build?" or he is told that he may use any kind of block if he seems to be inclined to restrict himself to one size. In the beginning of the school year the children are shown the blocks and are told that they may build. The only restriction placed upon the use of the materials is that they are not to be thrown and that structures are not to be knocked down. Probably the most potent factor in establishing a creative use of blocks is the genuine interest of the teachers in block building as an expressive art—an outlet for the manifold experiences through which children are living, whether they are the intentional experiences of the school or those that life itself thrusts upon them. In children's reaction to their "work" the teachers see such evidences of interest, absorption and elation that their enthusiasm is kindled.

The patterns and techniques illustrated in the foregoing pages may not be found invariably at the ages cited, but they do occur as preliminary stages to an elaboration of the use of blocks. My point will be clearer when the later development of block building is shown.

When a child who has not had the experience with block building comes into a group at four or five years of age he seems to follow much the same order of development that younger children do, but of course passes through the various phases at a much more rapid rate of speed. Simple bridges and simple enclosures, hardly more developed than three-year-old products, are found at the early stage among four-year-olds if the materials are unfamiliar to them. The steps or stages that have been described seem invariably to appear first. The rate at which a child passes through these stages, the emphasis he places on each and the lines of development that he subsequently follows, vary with the individual.

The inclination to seek a patterned arrangement also varies, but only, I think, in degree. There are few young builders who seem to lack a feeling for pattern and balance. For the most part the design they follow is a more or less evenly balanced, almost formal one. Often the rhythm is a muscular one, that is, the child places a block at the right, then at the left, or a block at the front of a construction, then at the back. The fact that opposite sides of a large construction are in absolute balance even when the design is intricate, seems to suggest that the builder is dominated by an image, whether kinaesthetic or visual we do not know.

However, younger children, having completed structures which in the opinion of adults are quite perfect, often mass blocks all about concealing the patterns entirely in conglomerate piles, as if they either did not see the patterns or did not value them. Fours and Fives rarely do this.

Just why did Edith, at two years, four months, choose from the block shelves this varied combination? Both cubes set on top are yellow.

*Fig. 35*

At the same age she made this very similar pattern, but here she has taken length for her accent and has placed posts—evenly spaced—on each of the double units.

*Fig. 36*

Danny, two years, five months, still much in the stage of stacking, made this very unusual arrangement of posts. More were laid than sketched here. In spite of its being a rather tricky pattern to follow consistently, the alternation was maintained.

*Fig. 37*

How can a child who has worked so little with this material, who is so immature in other details of development, in language, and indeed in block building, keep consistently in mind this sort of alternation? The answer probably is that

he did not keep it in mind but in muscle, or at least that it was feeling, not thinking that guided him.

Sometimes the pattern is a small one, repeated again and again. Sarah Anne, two years, six months, used posts as illustrated.

*Fig. 38*

We watch for a slip, but with automatic precision, having set at one side one block on its face with two on edge atop, a child "remembers" to place them in exactly the same position on the other side. This is true even when edges are not set precisely. Joan, two years, seven months, tended to build rather small, beautifully balanced units.

*Fig. 39*

Michael, three years, made much conversation about his structure, which he named a train. Apparently he began his building with a definite alternating pattern, but was unable to carry it through consistently.

*Fig. 40*

Michael, three years, one month, made this arrangement of cubes. At this date he also made the diamond-shaped enclosure (page 22).

*Fig. 41*

This design in layers, small cubes tucked between rows of larger blocks, appears frequently. Tony, three years, one month, did not name his construction.

*Fig. 42*

Tony, three years, two months. Spreading, flat buildings were characteristic of Tony. The conventional balance does not possess him as it seems to possess some children, but to the adult onlooker the design element has charm.

At this age naming may be a part of building so this is "Big, long, long train."

*Fig. 43*

Tony, three years, six months. This building which Tony

made four months later was unnamed. It illustrates the way structures become more intricate as children grow older.

*Fig. 44*

One feels a lovely balance in Ingrid's building, made at three years, seven months. She made just this, then left it. She did not name it.

*Fig. 45*

A month later she built this variation of the Greek Key pattern. She gave it no name.

*Fig. 46*

Betty, three years, eight months. At the right there was a higher structure which was not sketched in detail. The portion sketched was named, "This is some beds."

*Fig. 47*

At four Judith made this turnstile arrangement. She did not give it a name.

*Fig. 48*

Rather a difficult task this, to balance long blocks on their edges and to place the upright unit with its triangle cap at a point where it can hold the balance. Judith, four years.

*Fig. 49*

John, four years, two months. No name recorded but "tracks" mentioned.

*Fig. 50*

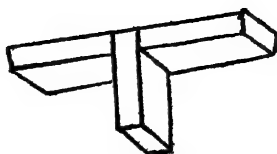
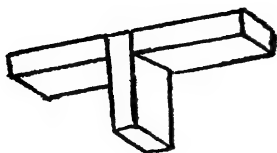
Judith, four years, three months. A child who is aware of an intention, for she called this "decoration."

*Fig. 51*

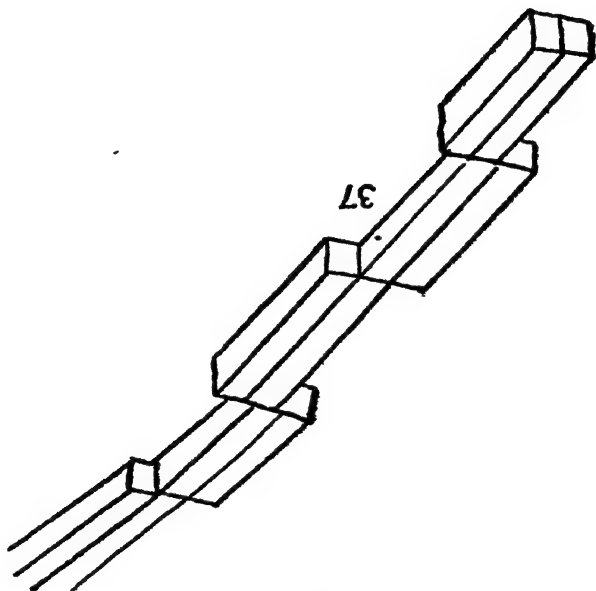
Somewhere along in the early block building history an impulse to name arises. This does not mean that the buildings resemble the things they are called. Children may give names to their constructions, or their drawings, because of



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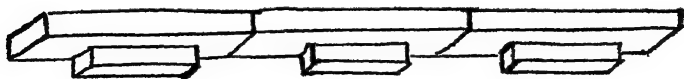


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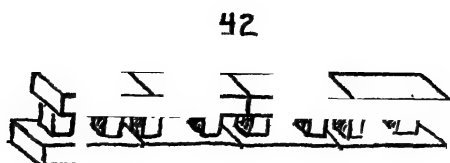
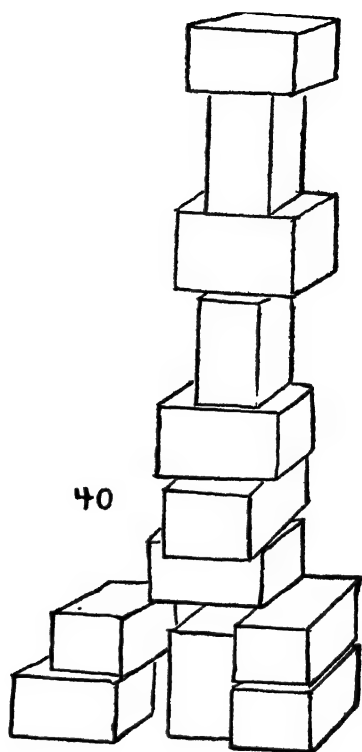
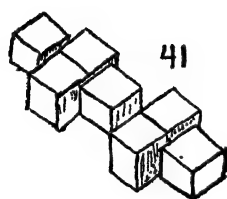
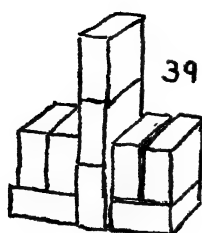
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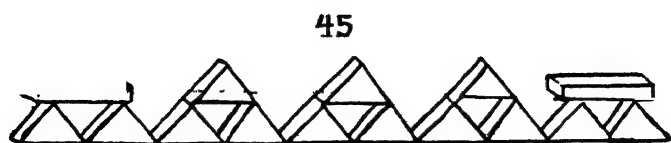
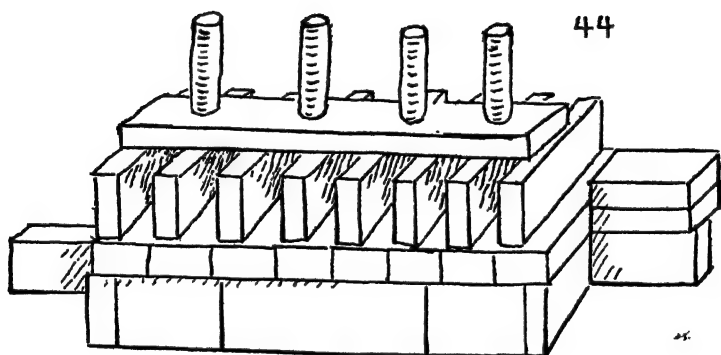
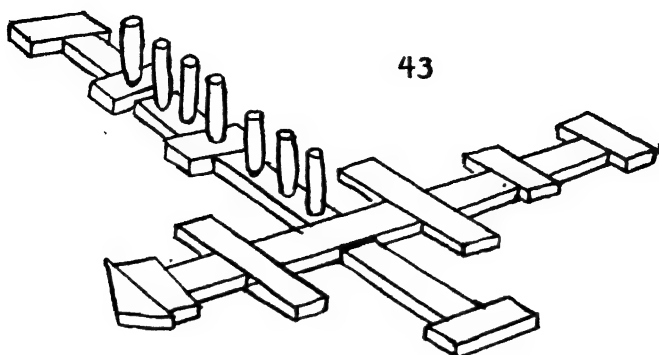
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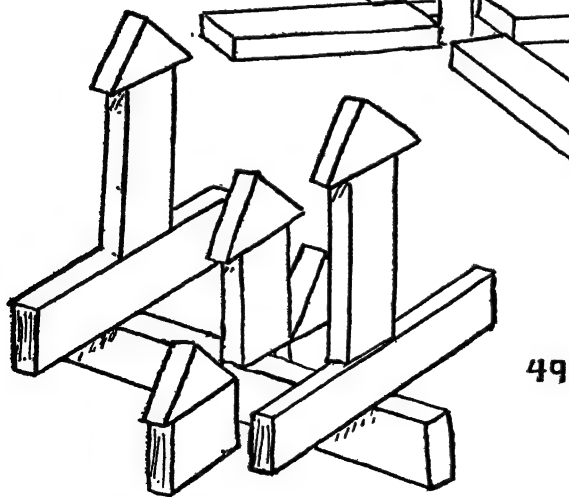
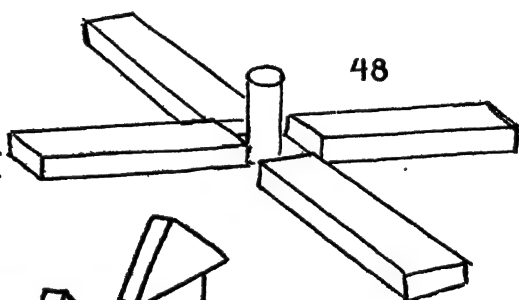
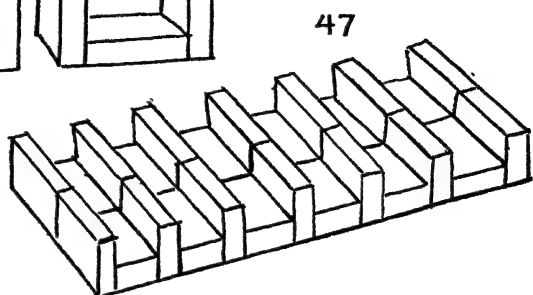
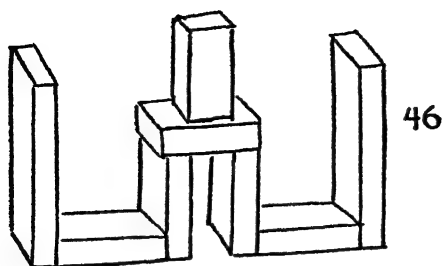


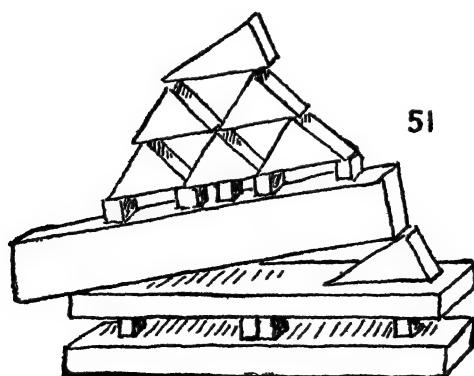
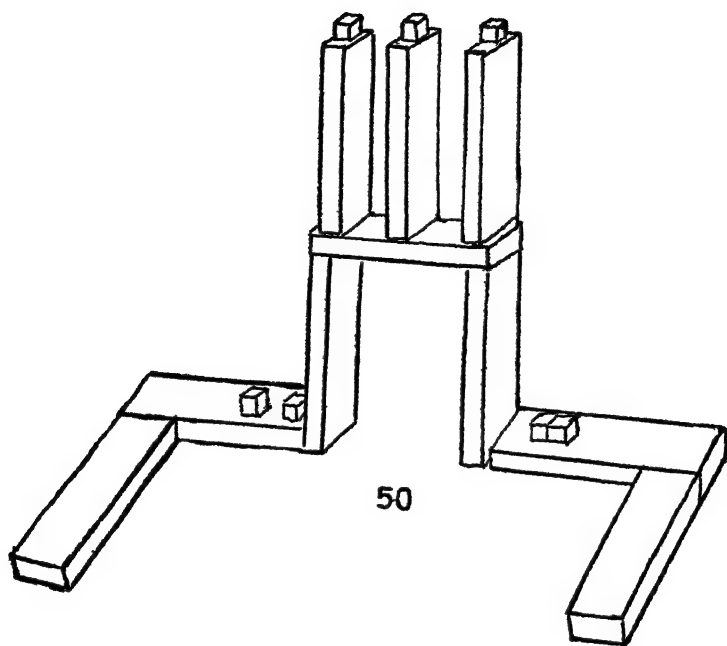
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the example of older children, who do so with intention, or, which is more probable, because of injudicious adult questioning. Teachers are quite careful to avoid suggesting, even by questions, that children name their buildings, because they have learned that real representative building comes at a later stage.

Among two- and three-year-old children we find naming but very rarely play use of the structures made with the small indoor blocks. Naming becomes very usual among older children. The name is often announced as an advance plan. Dramatic use of buildings increases at four and five. The techniques of building are well learned so that the material is no longer master of the situation as it is at two years.

At five or six the dramatic impulse is so strong that the buildings reproduce or symbolize actual structures or experiences which the children are recalling, and serve as stage settings. A group of five-year-old children built a railway system, tracks, stations, switching engines, a tower for the signal man, and even the building to which the railroad employees go to get their watches tested. These standpatter<sup>3</sup> employees took their meals on a roof garden constructed by one of the girls in the group. All the buildings in this play scheme were built by individuals, but the play with them afterward was co-operative and interrelated. Play of this sort represents a fairly mature understanding.

Other materials, like crayons and clay, are more freely in use and serve as supplements to the play or as elaborations of it. Tools have been introduced so that bench products can be made and added to the scheme of play of which the block building is the center.

With all the opportunities for elaboration of the represen-

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<sup>3</sup>Dolls made of copper wire, with lead feet and wooden beads for heads and hands.

tative structures we find some surprising, though probably logical, developments. In the first place we realize as we look at the block buildings that repetition continues to be much in evidence. The tower has grown more complicated, but its construction still means placing first one block and then another in a pile of sorts. The pile may be foursquare, made of repeated bridge units, superimposed one upon another, or it may be an enclosure of solid walls. Children call upon all the techniques they acquired in their early experimenting period, combining the simple patterns, including many in a single structure, and using many more blocks in the process. Secondly, with the increasing tendency of children to give names to their structures, we find the design elements persisting and becoming more intricate and at the same time taking on attributes which we usually associate with symbolism as we know it in the art sense.

Henry's building, at two years, ten months, strikes a commonly accepted pattern in general movement, the larger base narrowing to the slender, terminal tower, quite in unrecognized acceptance of New York's set-back fashion. Henry's name for his tower, "a park," may have meant that he had observed buildings in a park or, more probably, it may have been an overflow from his awakening social and language interest. That he also mentioned bridges, smokestacks and doors to the entranced Joan, who listened, watched and tried to direct him, suggests that his language was not closely related to his building. The three small blocks at the tip of the tower were called "lights."

*Fig. 52*

Andrea's "Empire State," built when she was just five, is an illustration of a very practical cob house construction with very little elaboration. Its name is almost inevitable since Manhattan is dominated by that vertiginous piece of architecture.

*Fig. 53*

Stair-building is popular in four- and five-year building. We have found only one example of graduated steps made in the two- to three-year-old groups. These appeared in a conglomerate pile and were not used nor named nor repeated, so we concluded that it was an accidental arrangement, and that its representative significance was not recognized.

Edith, at two years, four months, and Danny, at two years, seven months, were both noted as using blocks in slanting positions a good deal. No name given.

*Fig. 54*

Danny, two years, seven months. No name was given but trains were run over the structure with no success.

*Fig. 55*

Tony, three years, three months. Gave building no name. At this stage all these structures seem like examples of the balanced, designed building already illustrated.

*Fig. 56*

When a child of three years, eight months, called a scattered pile of blocks "stairs," he was asked by the teacher to build some. He then arranged blocks in this formation.

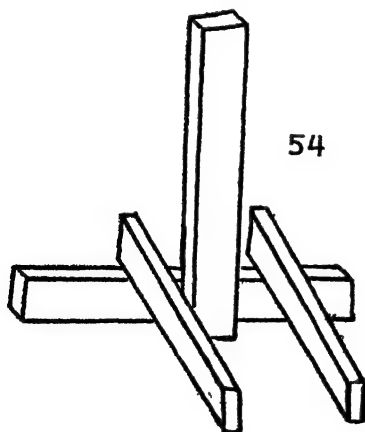
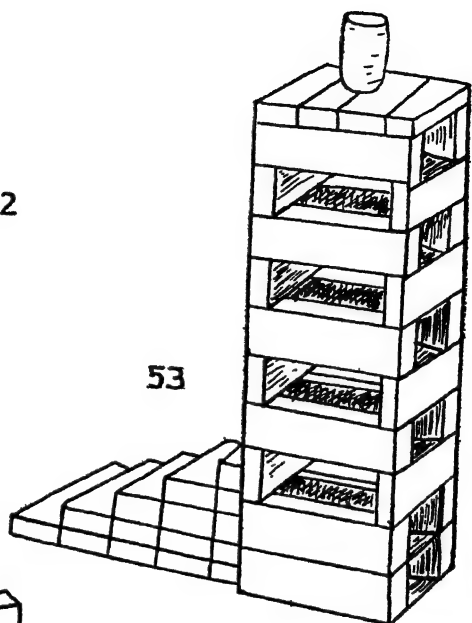
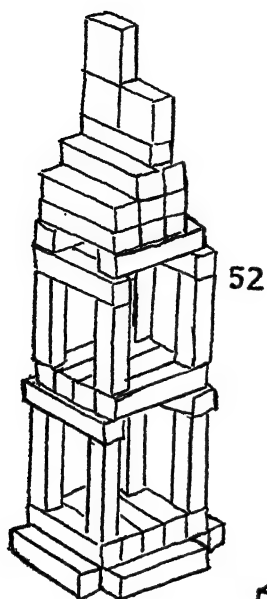
*Fig. 57*

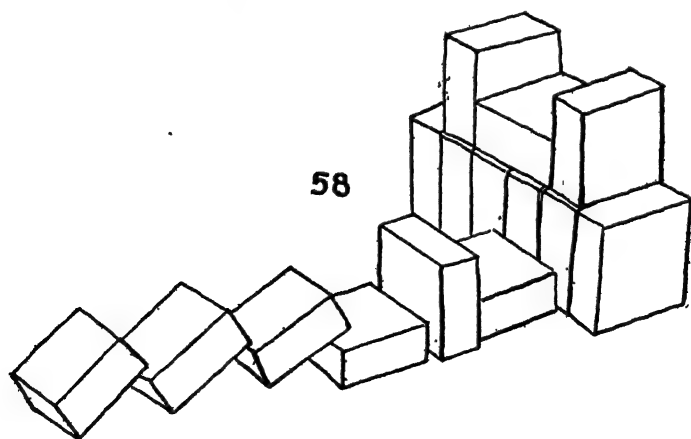
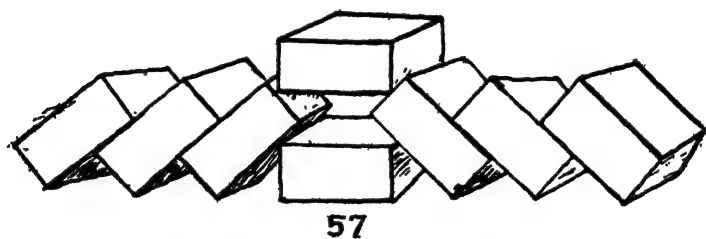
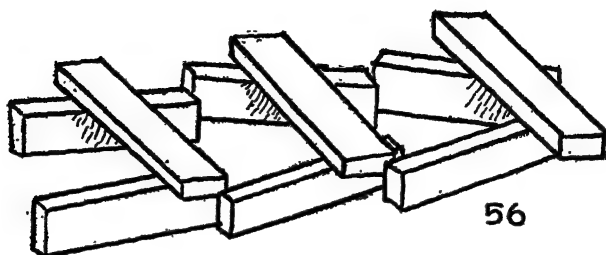
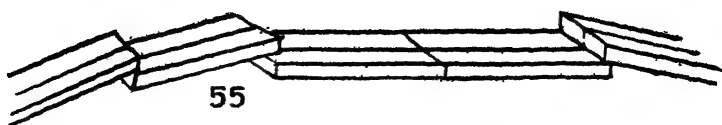
Finally Betty, three years, ten months, came through with a statement: "A house and these are the stairs."

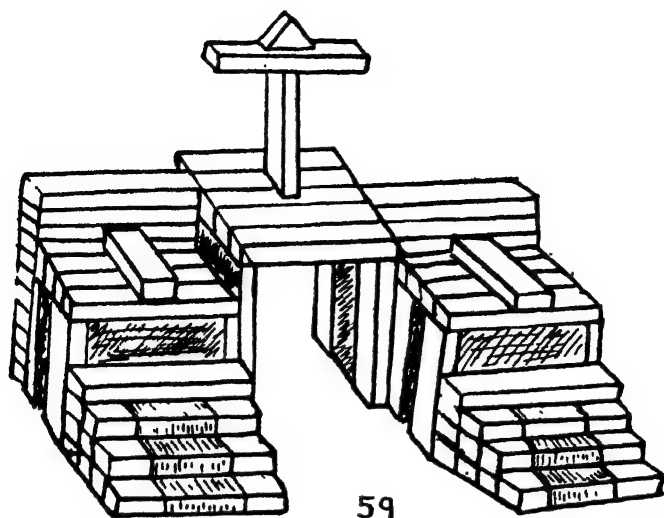
*Fig. 58*

Do little children see stairs in some such pattern or are they unable to grasp the technique of making gradually decreasing piles, set side by side? Since they can build a train shed completely enclosed, so that no train can enter or leave it, since they make a high chair for the baby taller than the house in which it is to be placed, since the early drawing of a boat may be a collection of smokestacks and funnels, we know that the young hand needs much practice and that though the young mind can assimilate certain out-









standing features, it does not take in a total complicated conception.

At five, Andrea was quite capable of using stairs as a part of a beautifully balanced building, and of arranging doll blankets on them as carpets.

*Fig. 59*

The really dramatic quality about these young builders is not their mastery of techniques but their attitude toward the material. It is essentially that of the artist. Even when they do representative building it is the essence, not the bald form, that they make alive. We adults are prosaic in the use of our skills. We learn to speak or to write, and thereafter practice these arts in a strictly utilitarian and unimaginative

fashion. It is a rare person whose speech is marked by originality, or whose thoughts find expression in written language that seems really his own—that has the quality of the individual producing it.

The child speaks with his blocks. He says in his own way what he has to say. It may be fanciful or humorous. He may express a resemblance or a parallel in his building, or a symbol may stand for a complex conception.

Jeanne, at four years, one month, sees her two cylinders as “candlesticks,” and so do we.

*Fig. 60*

“The river, that goes up and down like waves,” was as effective to Jan, at four years, three months, as an inspired simile to an older poet.

*Fig. 61*

Even at four years, seven months, one may still think of machines as children and as members of a family, so Edward makes a fleet or a litter of “baby airplanes with the mama plane.”

*Fig. 62*

Jackie’s “horse with me on it” is an example of how little the limitations of his material need cramp a five-year-old.

*Fig. 63*

Richard’s “Empire State” is “like the real one, big at the bottom and then smaller and then smaller.”

*Fig. 64*

Peter’s “Chrysler Building,” five years, five months, has some neat architectural problems involved in its construction, and the name tag, made by the teacher at his request, is a tribute to its height, not to its detail.

*Fig. 65*

John, four years, nine months, and Lucio, five years, two months, saw these blocks, set up on their ends, with imaginative eyes. It is “a parade,”—not quite so orderly as some.

Perhaps the crowd is gathered to welcome a visiting celebrity. Even the airplanes are here.

*Fig. 66*

Judith, four years, eleven months, has used a wide variety of material in her unnamed structure. Its balance is not entirely conventional, and therefore perhaps more pleasing to adults.

*Fig. 67*

Norman's "hospital," in its arrangement of planes and lines, has a modern flavor startling to adults. We cannot know what it meant to him—not an experiment in planes, we may be sure, at the age of five years only, but some sort of an affective experience was his as he worked, absorbed, sober, intent, oblivious of the other builders till the last zigzag block was laid and his work was finished.

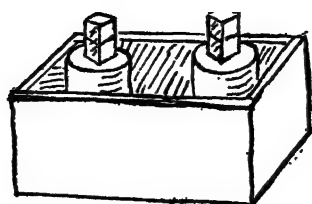
*Fig. 68*

Joel's unnamed structure, made when she was just six, shows some outstanding features in balance. Note that she has matched the cubes in colors from the right to the left side. She has let in three windows in each of her side walls. Two of them are made after the classic design favored by four- and five-year-old builders. In these the opening will just take a half-unit block. Put in place it closes the window, as can be seen. The third window on either side has a slightly different construction, making a larger opening. She has apparently raised the sash, holding it up with an arrangement of three cubes, two red and one green. The opposite side of this structure is identical with the one sketched.

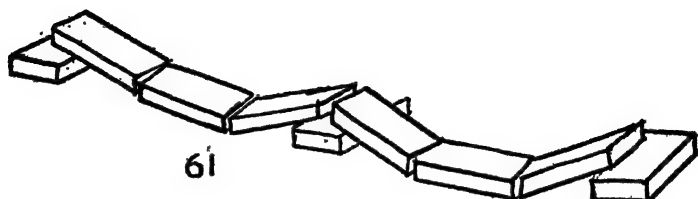
*Fig. 69*

And so it goes.

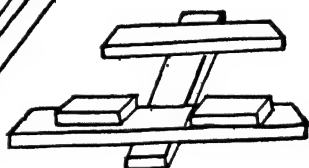
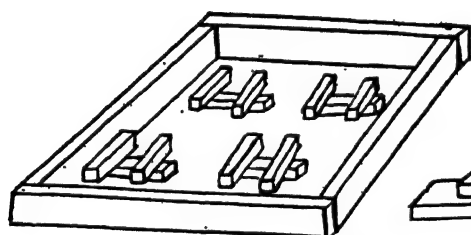
The difficulty in gathering these examples from our records has been in deciding which among many to include.



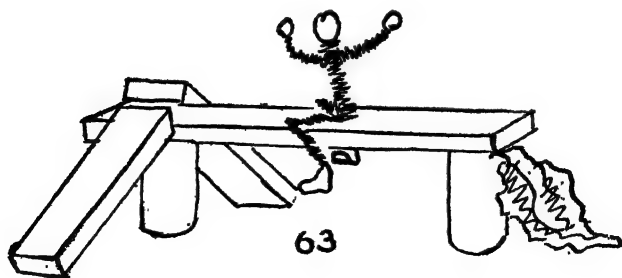
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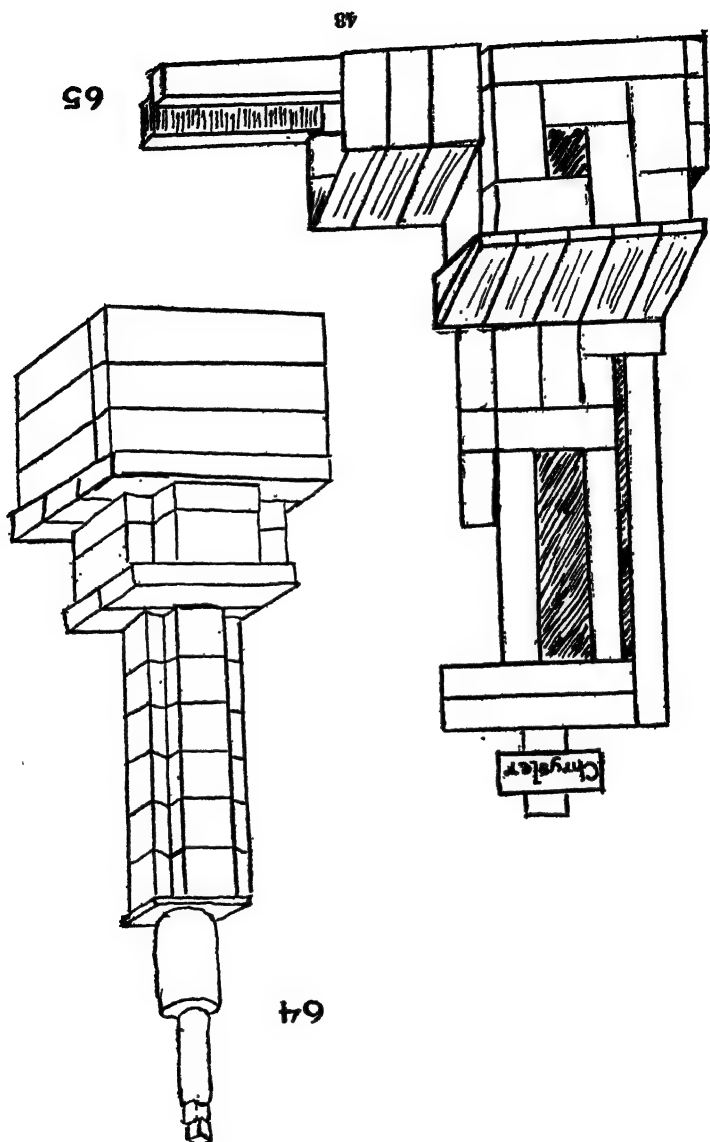
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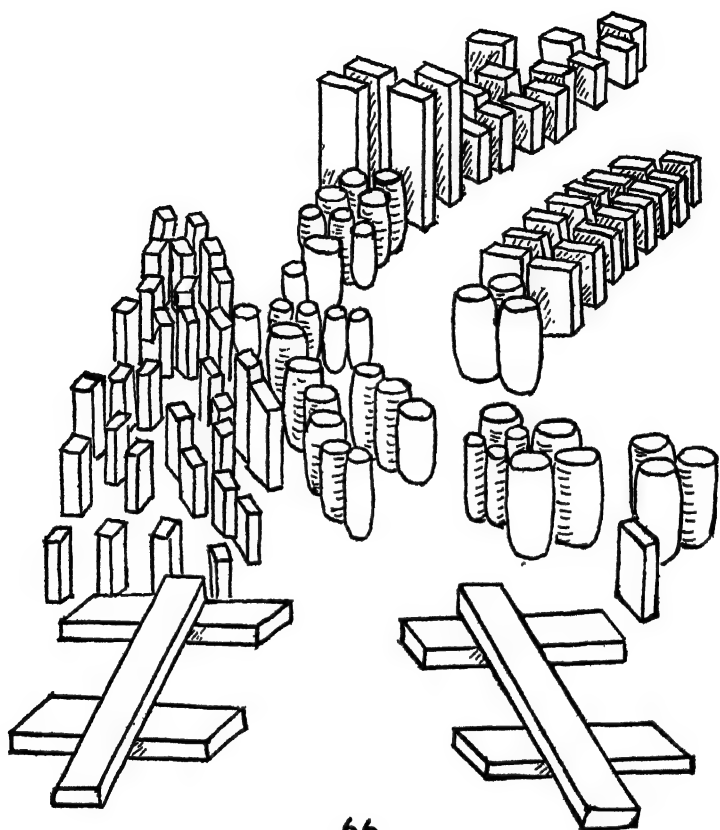


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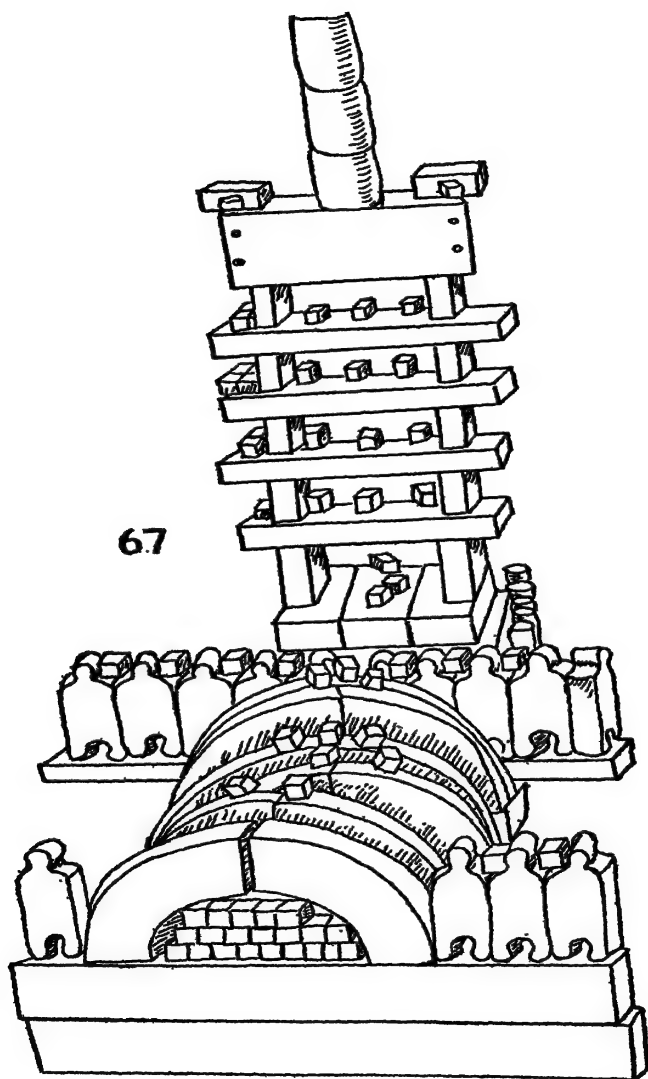
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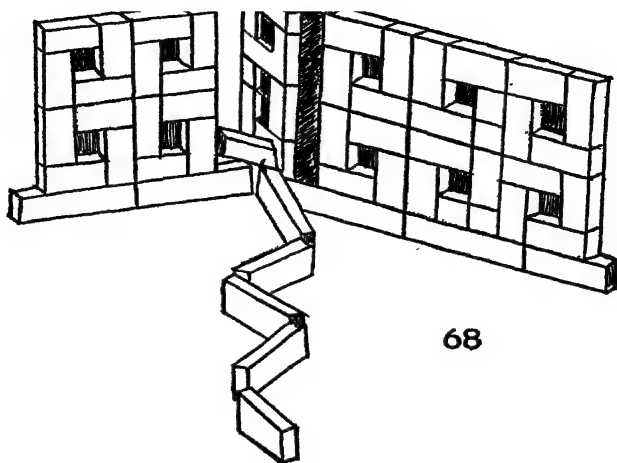




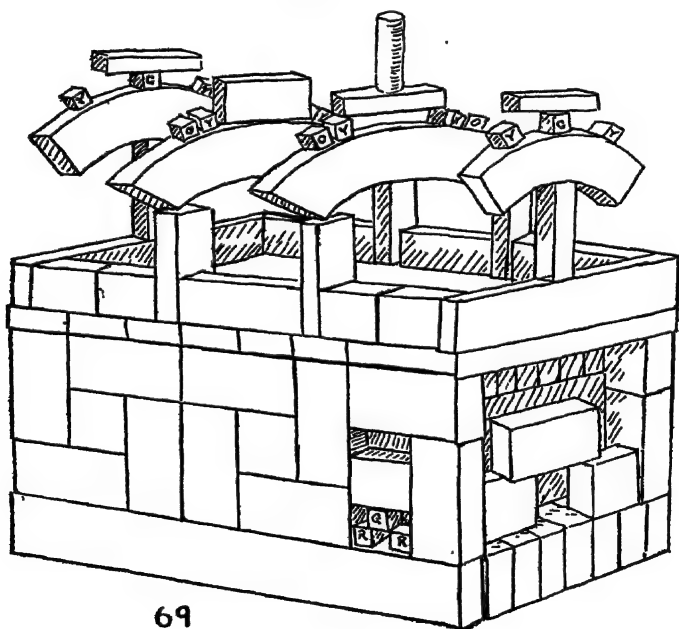
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68



69

Many of the most intricate and enchanting constructions were too elaborate for the lay hand to sketch.

For the most part I have emphasized what I have called the use of blocks as art material rather than their use in dramatic reproduction—the play with form and balance in their use, rather than with representation and utility.

At about six or seven, when children are old enough to get satisfaction in their handling of paints and clay and wood, blocks seem to have served their usefulness as expressive materials.

We have not realized sufficiently the richness of this kind of play material on the one hand, nor the richness of children's imaginative resources on the other. No adult could have planned a didactic method which could have stimulated children to this sort of activity, but also no such building is found unless favorable conditions are made for it. These include a lavish supply of materials, and a program that gives to children first-hand experiences which make them more aware of the world and their place in it. Added to this is an attitude on the part of the teacher that the interest of children in construction is significant and must be protected. She will feel a genuine enthusiasm for the block building program after she has watched such development as the preceding material would indicate.

The details of the teaching techniques which help develop profitable use of blocks cannot be discussed here, but the essentials are a recognition of the possibilities in block building, actual respect for and interest in the activity, the provision of space and time for it and the protection of the children from interruption and encroachment from less interested individuals. Given such conditions and such a teacher attitude, I believe that in any group of normal children the progressive development of structures such as these will be found.









